

REMARKS

In the Specification

The inadvertent error of not indicating the number “106” in bold as done with all the other layer numbers on page 16, lines 2-3, is corrected in the replacement paragraph.

The inadvertent omission of the word “in” on page 16, line 5, between the words “used” and “Type” is corrected in the same replacement paragraph.

Rejections under U.S.C. 112

Claims 1-8 are rejected under U.S.C. 112 as being single means claims.

To clarify and distinctly claim the subject matter of the invention, Applicant has amended independent claim 1 to include an optical device as another recited element of means, to further clarify the reflective layer as an infrared reflective layer, and to include the organic radical cation compound as exhibiting a reflectance in the infrared region from 1250 nm to 1700 nm.

Support for the amendment to independent claim 1 may be found, for example, on page 3, lines 25-31; page 8, lines 6-9; page 9, line 26, to page 10, line 6; page 11, lines 1-10 and lines 16-22; page 12, lines 13-24; page 18, lines 19-27; and page 19, lines 5-8.

Applicant submits that the amended independent claim 1 fully addresses the Examiner's concerns. In view of the amendments to independent claim 1 and the above remarks, Applicant respectfully requests that the rejection of claim 1 under 35 U.S.C. 112, first paragraph, as being single means claims, be withdrawn.

Dependent claims 2-8 to amended base claim 1 now depend on a base claim that has been amended to put it into a condition for allowance. Dependent claims 2-8 have been amended to have the antecedent of the phrase “optical device” in amended claim 1. Dependent claims 6-8 have been further amended to have the description of the reflective layer as an infrared reflective layer, as in amended claim 1.

In view of the amendments to independent claim 1 and the above remarks, Applicant respectfully requests that the rejection of claims 2-8 under 35 U.S.C. 112, first paragraph, as being single means claims, be withdrawn.

Rejections under U.S.C. 102

Claims 9-28, 41-43, and 45-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Oguchi et al. (U.S. Pat. 4,921,780A), hereafter referred to as the ‘780 patent.

The infrared compound that exhibits an infrared reflectance in the recording layer in the '780 patent to Oguchi et al. is a diazulenium salt, as described in col. 2, lines 4-54; col. 3, line 51, to col. 4, line 63; col. 48, lines 32-42; and further throughout the '780 patent. The reflective diazulenium salt of the '780 patent is a organic cation compound with a counteranion, such as a hexafluoroantimonate anion. A diazulenium salt does not have any free radical moieties and, as such, is not a free radical compound or a radical cation compound. The definition of a free radical moiety in the instant invention can be found on page 6, line 30, to page 7, line 12, of the specification with an example of a free radical compound shown in Chart 1 on page 10 with the free radical moiety present on the central nitrogen atom.

The '780 patent describes the use of surfactants, antistatic agents, stabilizers, dispersing agents, flame retardants, lubricants, plasticizers, etc. in the recording layer with the reflective diazulenium salt compound (see col. 49, lines 20-22). Aminium salt compounds or diimmonium salt compounds are described in col. 49, lines 23-48, as providing improved recording and reproducing characteristics and storage stability when incorporated in the recording layer in addition to the diazulenium salt compound. Aminium salt compounds and diimmonium salt compounds are organic free radical compounds, specifically organic radical cation compounds. As described in col. 52, lines 23-28, the amount of the aminium salt compound or diimmonium salt compound added may be 1 to 60% by weight, preferably 5 to 40% by weight based on the total solid components in the recording layer.

There is no teaching in the '780 patent of the aminium or diimmonium radical cation compounds exhibiting any reflectance, including any reflectance in the infrared and specifically any reflectance in the infrared region from 1250 nm to 1700 nm. Examples 1 to 17 in the '780 patent have only a reflective diazulenium salt compound in the recording layer with no aminium or diimmonium salt compounds present. This suggests that the aminium or diimmonium salt compounds are not required in the recording or imaging of the reflective layer.

The reflectance measurements in the examples of the '780 patent are made only at 830 nm. There is no teaching or suggestion in the '780 patent of reflectance in the infrared region from 1250 nm to 1700 nm. In Examples 29 to 59 in the '780 patent (see col. 57, line 61, to col. 62, line 13), the % reflectance measured at 830 nm varies over the range of 16 to 27% while the weight ratio of diazulenium salt compound:aminium or diimmonium salt compound varies from 90:10 to 60:40. Different combinations of materials are used in these examples. In Examples 30 to 40, for example, the percent of aminium salt compound in the recording layer varies from 10 to 30% by weight, but the % reflectance at the initial stage only varies from 22 to 27%. For

example, Examples 31, 33, 38, 39, and 40 all exhibit 24% reflectance in the initial stage, but contain 30, 15, 15, 25, 15, and 20% by weight of aminium salt compound, respectively, in the recording layer. The purpose of the aminium salt compounds and diimmonium salt compounds in the recording layer of the '780 patent appears to be that of stabilizers for the recording layer.

In summary, there is no teaching in the '780 patent of the infrared reflectance of aminium salt compounds or diimmonium salt compounds or any other free radical compounds and no teaching in the '780 patent of any infrared reflectance in the infrared region of 1250 nm to 1700 nm.

To clarify and distinctly claim the subject matter of the invention, Applicant has amended independent claim 9 to further clarify the reflective layer as an infrared reflective layer and to include the organic free radical compound as exhibiting a reflectance in the infrared region from 1250 nm to 1700 nm.

Support for the amendment to independent claim 9 may be found, for example, on page 3, lines 25-31; page 4, lines 8-10; page 8, line 28, to page 9, line 7; page 9, line 26, to page 10, line 6; page 11, lines 1-10 and lines 16-22; page 12, lines 13-24; and page 19, lines 5-8.

Applicant submits that the amended independent claim 9 fully addresses the Examiner's concerns. In view of the amendments to independent claim 9 and the above remarks, Applicant respectfully requests that the rejection of claim 9 under 35 U.S.C. 102(b) as being anticipated by Oguchi et al. ('780 patent), be withdrawn.

Dependent claims 10-28 to amended base claim 9 now depend on a base claim that has been amended to put it into a condition for allowance. Applicant respectfully requests that the rejections of claims 10-28 under 35 U.S.C. 102(b) as being anticipated by Oguchi et al. ('780 patent), be withdrawn.

Claim 41 has been canceled without disclaimer or prejudice. Claims 42 and 43 have been amended to depend on amended claim 44. Claim 44 has been amended into an independent form to include all of the limitations of the base claim 41 and any intervening claims, and the Examiner has indicated that claim 44 would be allowable if rewritten in this manner. Applicant submits that the cancelled claim 41 and the amended claims 42 and 43 to depend on amended base claim 44 fully address the Examiner's concerns on claims 41-43.

Claims 45-48 have been canceled without disclaimer or prejudice. Applicant submits that canceled claims 45-48 fully address the Examiner's concerns on claims 45-48.

Allowable Subject Matter

The Examiner has indicated in the first Office Action of November 4, 2004, that claims 29-40 are allowed.

The Examiner has also indicated in the first Office Action that claims 44 and 49-54 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 44 has been amended into an independent form to include all of the limitations of the original base claim 41. Claim 41 has been canceled. Claims 42 and 43 have been amended to depend on the amended base claim 44.

Claim 49 has been amended into an independent form to include all of the limitations of the original base claim 45. Claim 45 has been canceled. Claims 46-48 which depended on claim 45 have also been canceled. Claims 50-54 now depend on amended base claim 49.

In view of these amendments and the above remarks, Applicant respectfully requests that the objections to claim 44 and 49-54 as being dependent upon a rejected base claim, be withdrawn. Applicant submits that dependent claims 42 and 43 now depend on a base claim 44 that has been amended to put them into a condition for allowance.

New Claims

New claims 55-66 are submitted. The appropriate fee for a net total of 7 new claims and of 3 new independent claims is submitted herewith.

New claim 55 depends on amended base claim 1. Support for new claim 55 can be found, for example, on page 8, lines 6-11; page 11, lines 12-14 and 16-22; and page 13, lines 24-27.

New claims 56-64 are directed to a solar window film which is one of the optical devices to which amended claims 1-8 and new claim 55 are directed. Support for new claims 56-64 can be found, for example, on page 3, line 25, to page 4, line 7; page 8, line 28, to page 9, line 7; page 12, lines 13-26; and page 18, line 28, to page 19, line 8.

New claim 65 is directed to a mirror which is one of the optical devices to which amended claim 1 is directed. Support for new claim 65 can be found, for example, on page 3, line 25, to page 4, line 7; on page 8, line 28, to page 9, line 7; and on page 12, lines 7-12.

New claim 66 is directed to a security marking which is one of the optical devices to which amended claim 1 is directed. Support for new claim 66 can be found, for example, on

page 3, line 25, to page 4, line 10; on page 8, line 28, to page 9, line 7; on page 13, lines 5-8; page 15, lines 9-15; and page 18, lines 28-31.

Information Disclosure Statement


An Information Disclosure Statement with the appropriate fee set forth in 1.17(p) is submitted herewith. Applicant respectfully requests that the Examiner consider this information.

CONCLUSION

Claims 1-40, 42-44, and 49-66 are now pending in this application. Applicant respectfully requests that the amendments and new claims be entered. Applicant believes that, in view of the above amendments and remarks, pending claims 1-40, 42-44, and 49-66 are allowable, and such action is respectfully requested. If any matters remain unresolved, the Examiner is invited to contact the Applicant's undersigned representative.

Dated: April 4, 2005

Respectfully submitted,

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